IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Application No.	:	10/542,173	Confirmation No. :	8290
First Named Inventor	:	Leonardo PROVVEDI		
Filed	:	January 29, 2004		
TC/A.U.	:	2617		
Examiner	:	Diego D. Herrera		
Docket No.	:	103884.56565US		
Title	:	TFC Selection in the Uplink		

APPEAL BRIEF

Mail Stop Appeal Brief- Patents
Commissioner for Patents
P.O. Box 1450
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Sir:

On July 20, 2009, Appellants appealed to the Board of Patent Appeals from the final rejection of claims 1-21. The following is Appellants' Appeal Brief submitted pursuant to 37 C.F.R. § 41.37. **A one month extension of time is respectfully requested and the appropriate fee is submitted herewith.**

I. REAL PARTY IN INTEREST

An assignment of the present application to Nokia Siemens Networks GmbH & Co. KG was recorded on December 13, 2007 at Reel/Frame 020361/0472.

II. RELATED APPEALS AND INTERFERENCES

Appellant is not aware of any appeals, interferences or other proceedings which may be related to, directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

III. STATUS OF CLAIMS

Claims 1-10, 12 and 15-21 are the subject of this appeal. Claims 11, 13 and 14 have been canceled and are not part of this appeal.

IV. STATUS OF AMENDMENTS

Appellant filed an amendment on June 12, 2009, proposing to cancel claims 13 and 14 and correct two minor typographical errors in claim 15. The Advisory Action, however, failed to indicate whether these amendments have been entered. Because these amendments reduced issues for appeal and do not require further search and/or consideration, it is believed that these amendments should have been entered. This Brief assumes that these amendments were entered.

V. SUMMARY OF CLAIMED SUBJECT MATTER

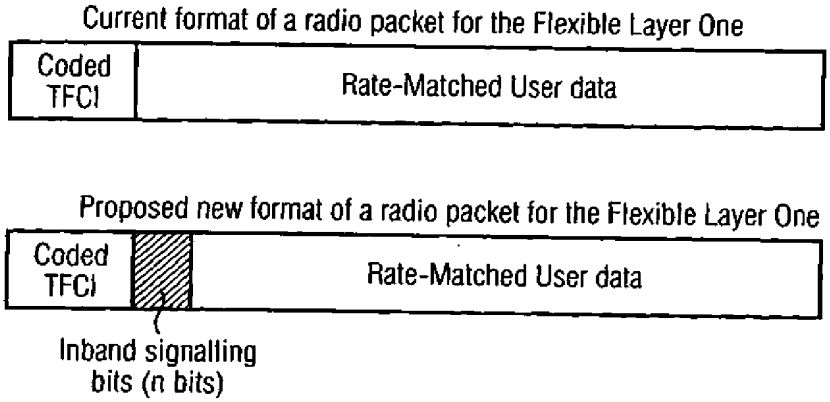
Appellant discloses and claims exemplary techniques for selection of a transport format combination (TFC) for use by a mobile station's transmission to a network. Early GSM networks were limited to only one temporary block flow (TBF) in the uplink transmission from a mobile station to a base station, and accordingly a single radio block could only carry one type of data, e.g., only one of voice data, control data, an image file, video data, interactive web-based service data, etc. This limitation has been addressed by providing a Flexible Layer One (FLO), allowing data belonging to different temporary block flows (TBFs) to be transmitted in a single radio block.

There are two significant issues with use of Flexible Layer One (FLO) for mobile station transmissions in the uplink. The first issue is that the network is not aware of the types and quantity of data being transmitted by the mobile station, and thus the network typically cannot select a Transport Format Combination (TFC). Accordingly, the standards body 3GPP has agreed that the

mobile station selects the TFC to be used in the uplink. The second problem is that the network, and not the mobile station, is able to measure the uplink channel conditions. Accordingly, it is necessary for the mobile station to know the uplink channel conditions, in addition to the type and quantity of data to be transmitted, in order to select the appropriate Transport Format Combination (TFC).

Appellant discloses and claims exemplary techniques for selecting a Transport Format Combination (TFC) that overcome the above-identified and other problems in the art by providing. Specifically, the network defines a set of transport format combinations and calculates a channel quality required for the use of each transport format combination (TFC), which is then communicated to the mobile station. The network also provides indications of existing channel quality to the mobile station. As illustrated in FIG. 6 of the present application (reproduced below), the indication of existing channel quality can be transmitted by inband signaling in a user data portion of a radio packet.

FIG 6



The mobile station, knowing the type and quantity of data to be transmitted, uses the set of transport format combinations and corresponding channel quality requirements to select a transport format combination based on the indication of existing channel quality.

Turning now to the claims, claim 1 recites a method for selecting a transport format combination TFC to be used for communication from the mobile station to the network, over a channel of variable quality. The method involves a) defining a set of possible transport format combinations, b) calculating a channel quality requirement for the effective use of each transport format combination and c) indicating the transport format combinations and the channel quality requirements to the mobile station[1]. The method also involves d) calculating an existing quality of the channel of variable quality and e) indicating the existing quality of the channel of variable quality to the mobile station[2]. The method also involves, in the mobile station, f) storing the transport format combinations and relative channel quality requirements g) receiving the indication of existing channel quality, h) selecting one of the transport format combinations having a channel quality requirement no greater than the existing channel quality, and i) informing the network of the selected transport combination[3]. The indication of the existing quality of the channel of variable quality is communicated to the mobile station by inband signaling, whereby the indication of the existing quality of the channel of variable quality is

[1] Figure 1, page 7, lines 17-27 and page 9, lines 1-22.
[2] Page 9, line 30-page 10, line 1.
[3] Page 10, lines 20-27.

included in every downlink radio packet, in data locations normally assigned for carrying user information[4].

Claim 6 depends from claim 1 and further recites that the step c) of indicating transport format combinations and channel quality requirements to the mobile station includes the steps of: (c1) ranking the transport format combinations according to the associated channel quality requirement; and (c2) indicating the rank of each transport format combination to the mobile station, along with the transport format combinations themselves, to the mobile station[5].

Claim 15 recites a method for selecting a transport format combination (TFC) for use by a mobile station for transmissions over a channel of variable quality to a base station. The method involves receiving, by the mobile station from the base station, a set of transport format combinations and a calculated channel quality requirement for each transport format combination of the set[6]. The method also involves receiving, by the mobile station from the base station, an indication of existing channel quality of the channel of variable quality, wherein the indication is received by inband signaling in a user data portion of a radio packet[7]. The mobile station selects one of the transport format combinations having a channel quality requirement no greater than the existing channel quality and the mobile station informs the base station of the selected transport combination[8].

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[4] Page 11, lines 14-23 and Figure 6.
[5] Page 9, lines 7-28.
[6] Page 9, lines 24-28
[7] Page 10, lines 15-18 and page 11, lines 14-23.
[8] Page 10, lines 20-27.

Claim 16 depends from claim 15 and further recites that the indication of existing channel quality is included in the packet following the coded transport format combination identifier (TFCI)[9].

Claim 17 depends from claim 15 and further recites that the indication of existing channel quality of the channel of variable quality is received by the mobile station in every data packet[10].

Claim 21 depends from claim 15 and further recites that the mobile station receives from the base station an indication of a rank of each transport format combination according to the associated channel quality requirement[11].

VI. GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL

The one issue for this appeal is whether the rejection of claims 1-10, 12 and 15-21 for obviousness under 35 U.S.C. § 103(a) in view of the combination of U.S. Patent No. 7,338,998 to Murata et al. ("Murata") and U.S. Patent Application Publication No. 2003/0036403 to Shiu et al. ("Shiu") is proper.

VII. ARGUMENT

The rejection of claims 1-10, 12 and 15-21 for obviousness in view of the combination of Murata and Shiu is improper because the combination does not disclose or suggest all of the elements of these claims. To the extent that certain dependent claims are not specifically addressed below, these dependent claims are patentably distinguishable over the combination of Murata and Shiu at least by virtue of their dependency.

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[9] Figure 6.
[10] Page 11, lines 14-15.
[11] Page 9, lines 24-28.

The rejection of Appellant's claims is improper because the rejection relies upon the transmitted power values as disclosing transmitting a set of transport format combinations and the use of dedicated control fields as disclosing using inband signaling in a user data portion of a radio packet. As set forth below, power values are not a set of transport format combinations and dedicated control fields are not part of a user data portion of a radio packet.

A. The Combination of Murata and Shiu Does Not Render Claim 15 Obvious

The combination of Murata and Shiu does not render claim 15 obvious because the combination does not disclose or suggest that a mobile station receives from the base station:

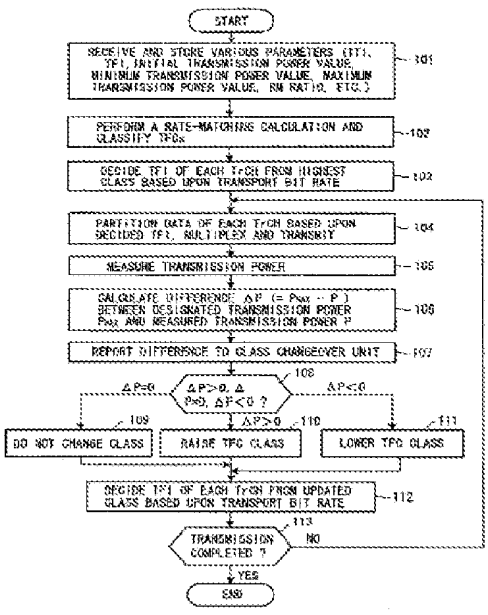
1. a set of transport format combinations and a calculated channel quality requirement for each transport format combination of the set; and
2. an indication of existing channel quality of the channel of variable quality, wherein the indication is received by inband signaling in a user data portion of a radio packet.

As previously discussed, the Patent Office has grouped claims 1 and 15 together and only addresses the language of claim 1, and not the language used in claim 15. Nevertheless, based on the rejection of claim 1 Appellant believes that the Patent Office is relying upon Murata for the disclosure of element 1 and either Murata or Shiu for the disclosure of element 2.

1. Murata Does Not Disclose or Suggest that a Mobile Station Receives a Set of Transport Format Combinations and a Calculated Channel Quality Requirement for each Transport Format Combination of the Set from a Base Station

Murata discloses a technique in which the classification and selection of transport format combinations is performed entirely within the mobile station. This is clearly illustrated in FIG. 6 of Murata (reproduced below) in which the mobile station's a terminal access function interface ("TAF IF") classifies the TFCs (step 102) and adjusts the TFC class based on a difference in power between the designated transmission power P_{MAX} and the measured transmission power P (steps 106-111).

FIG. 6



As illustrated in FIG. 6 of Murata (reproduced above), the mobile station receives various parameters, including TTI, TFI, initial transmission power value, minimum transmission power value, maximum transmission power value and rate matching (RM) ratio (step 101). Notably absent from this list of parameters is a set of transport format combinations and a calculated channel

quality requirement for each transport format combination of the set as required by Appellant's claim 15.

To reject a similar element recited in Appellant's claim 1[12], the Patent Office cites column 19, lines 34-43. This section of Murata discloses that the base station sends power values P_{MAX} or P_g to the mobile station, which "uses this value to create TFC control data and performs the TFC selection based upon the transmission power".[13] Power value P_{MAX} is the "designated maximum transmission power"[14] and power value P_g is the "appropriate transmission power".[15] Murata does not, however, disclose or suggest that P_{MAX} or P_g are a "set of transport format combinations" or "a calculated channel quality requirement for each transport format combination of the set" as specifically required by claim 15. Instead, these are two individual power values, and not transport format indicators.

It appears that the rejection of claim 15 is premised upon an improper distillation of Appellant's claim down to what the Examiner considers the "gist" or "thrust" of an invention, and therefore the rejection "disregards the requirement of analyzing the subject matter 'as a whole.'"[16] Specifically, in response to Appellant's previous arguments as to the lack of disclosure of Murata of this claim element the Patent Office cites column 19, lines 34-43 as disclosing "the base station judges and sends requirements and adjustments to be made to

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[12] As discussed below, despite the fact that claims 1 and 15 are not identical, the Patent Office has not specifically addressed how the disclosures of Murata and Shiu apply to the specific language of claim 15.
[13] Column 19, lines 51-53.
[14] Column 16, lines 16-17.
[15] Column 17, lines 42-43.
[16] M.P.E.P. § 2141.02 II., citing *W.L. Gore & Associates, Inc. v. Garlock, Inc.*, 721 F.2d 1540, 220 USPQ 303 (Fed. Cir. 1983), *cert. denied*, 469 U.S. 851 (1984)

mobile terminal which then complies".[17] Claim 15 does not merely recite that the base station "sends requirements", but instead specifically recites that the mobile station receives:

1. a set of transport format combinations; and
2. a calculated channel quality requirement for each transport format combination of the set.

Thus, a general disclosure that a base station "sends requirements" does not disclose or suggest the specific elements of claim 15. Thus, this improper distillation of Appellant's claim disregards the requirement to consider the claim as a whole, and therefore cannot form the basis of a proper obviousness rejection.

2. Shiu Does Not Disclose or Suggest that a Mobile Station Receives an Indication of Existing Channel Quality of the Channel of Variable Quality, the Indication Being Received by Inband Signaling in a User Data Portion of a Radio Packet

In addition to failing to specifically address the elements of claim 15, it also appears that the Patent Office has taken two different positions to reject the recitation of receiving an indication of existing channel quality. Specifically, the Office Actions appear to rely upon Shiu for this element, while the Advisory Action appears to rely upon Murata. Nevertheless, as discussed below, both Shiu and Murata fail to disclose or suggest the including an indication of existing channel quality using inband signaling in a user data portion of a radio packet.

The final Office Action cites Shiu's discussion of SINR or SNIR in paragraphs 0011, 0013, 0014 and 0052-0054 as disclosing the claimed "indication of existing channel quality" that is received by a mobile station. These paragraphs do not disclose or suggest that SINR or SNIR is received by the

[17] See, for example, page 2 of the Advisory Action.

mobile station as required by claim 15. Instead, these paragraphs disclose that the **mobile terminal measuring** the received SNIR:

- If the received signal quality **as measured** by the received signal-to-noise-plus-interference ratio (SNIR) **at the terminal** is too poor[18];
- The inner loop adjustment for a particular data transmission is typically achieved by (1) **measuring the signal quality of the data transmission at the terminal**[19]

Thus, contrary to the statements in the Office Action Shiu discloses measuring signal quality **at the terminal**, and not that an indication of signal quality is received by the mobile station as required by Appellant's claim 15. Accordingly, there is no disclosure or suggestion in Shiu that such indications are "received by inband signaling in a user data portion of a radio packet" as also required by claim 15.

3. Murata Does Not Disclose or Suggest that a Mobile Station Receives an Indication of Existing Channel Quality of the Channel of Variable Quality, the Indication Being Received by Inband Signaling in a User Data Portion of a Radio Packet

Likely recognizing this deficiency of Shiu, the Advisory Action no longer relies upon Shiu for the disclosure of this element[20], but instead now cites column 8, lines 25-45 of Murata as "teaching channel quality".[21] The cited section of Murata discloses that

> a base station measures the channel quality of uplink data..., determines whether a target channel quality has been attained and, on the basis of the determination, instructs the mobile station to raise or lower the transmission power of the uplink slot by slot by a TPC bit.

[18] Paragraph 0052. (Emphasis added).
[19] Paragraph 0055. (Emphasis added).
[20] Because the final Office Action appears to cite Shiu only for the disclosure of channel quality indications, it is not clear why Shiu is still cited to reject claim 15.
[21] Advisory Action at page 2.

As illustrated in FIGs. 15 and 16 of Murata (reproduced below), the TPC bit is included in a field reserved for this bit. Although these figures are labeled as prior art, there is nothing in the Murata indicating that the manner of transmitting the TPC bit is any different from that illustrated in these figures. As such, Murata does not disclose or suggest that the TPC bit is "received by inband signaling in a user data portion of a radio packet" as required by claim 15.

FIG. 15 PRIOR ART

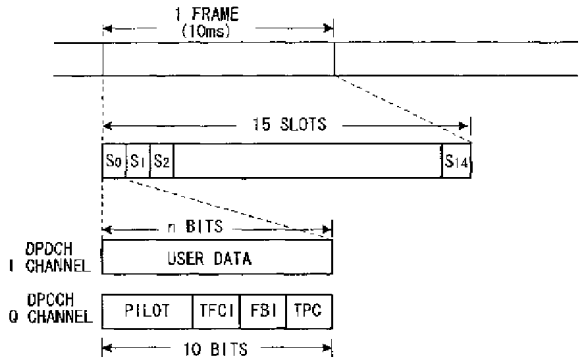
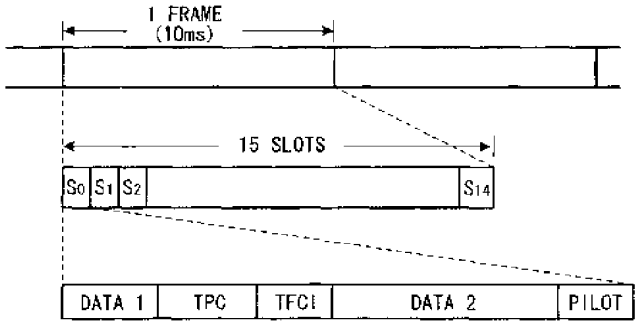


FIG. 16 PRIOR ART



B. <u>The Combination of Murata and Shiu Does Not Render Claim 16 Obvious</u>

Claim 16 depends from claim 15 and further requires that the indication of existing channel quality is included in the packet following the coded transport format combination identifier (TFCI). As discussed above, the Advisory Action relies upon the TPC bit of Murata for the disclosure of the indication of existing channel quality. As illustrated in FIGs. 15 and 16 of Murata (reproduced above), the TFCI fields is before the TPC field, and not after as required by claim 16.

The Office Action cites paragraph 0051 of Shiu for the disclosure of the elements of claim 16. This paragraph describes FIG. 4 of Shiu (reproduced

below) as including in the following order a TPC field, TFCI field, data field and pilot field. Accordingly, similar to the disclosure of Murata, Shiu discloses that the data field follows the TPC and TFCI fields.

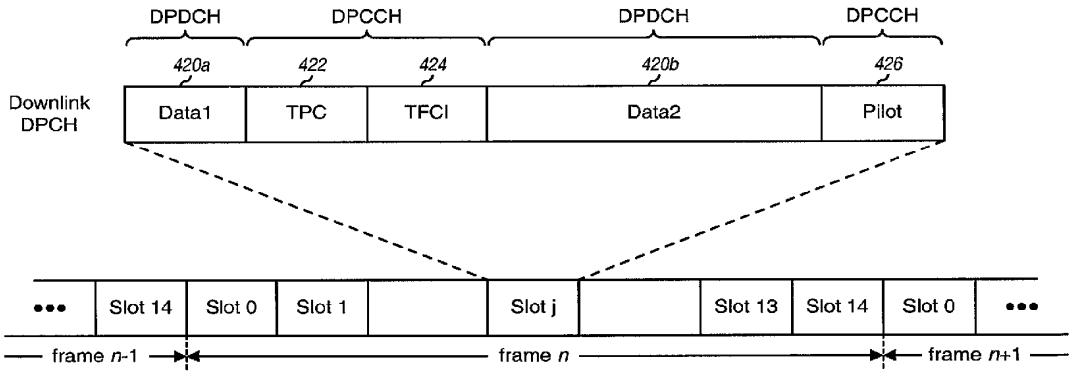


FIG. 4

It appears that unlike the interpretation of Murata in which the TPC field is being interpreted as the indication of existing channel quality, the interpretation of Shiu relies upon the data field as teaching this indication.[22] Shiu, however, fails to disclose or suggest that the data field includes anything other than conventional data. Shiu does not disclose or suggest that the data field includes an indication of channel quality as required by claim 16.

Because Murata and Shiu both fail to disclose or suggest all of the elements of claim 16, the combination cannot render claim 16 obvious.

C. The Combination of Murata and Shiu Does Not Render Claim 17 Obvious

Claim 17 depends from claim 15 and further requires that the indication of existing channel quality of the channel of variable quality is received by the mobile station in every data packet. The Patent Office cites paragraphs 00051-0054 of Shiu for the disclosure of "downlink shared channel and TFCI field with

[22] See page 8 of the Final Office Action "Shiu et al. teaches including data with TFCI".

data to mobile device". It is unclear whether the Patent Office is asserting that the TFCI or data field corresponds to the claimed indication of existing channel quality. To the extent that the Patent Office is relying upon the TFCI field, this reliance would be misplaced because this field is an indication of a transport format combination, and not of existing channel quality. Furthermore, the TFCI field is not included in a user data portion of a radio packet, but instead in a control portion. To the extent that the Patent Office is relying upon the data field, this reliance is misplaced because there is no disclosure or suggestion in Shiu that this field includes an indication of existing channel quality.

Because Murata and Shiu both fail to disclose or suggest all of the elements of claim 17, the combination cannot render claim 17 obvious.

D. The Combination of Murata and Shiu Does Not Render Claim 21 Obvious

Claim 21 depends from claim 15 and further recites that the mobile station receives from the base station an indication of a rank of each transport format combination according to the associated channel quality requirement.

As discussed above with regard to claim 15, Murata and Shiu both fail to disclose or suggest that the mobile station receives a set of transport format combinations. Accordingly, the combination cannot disclose or suggest that the mobile station receives from the base station an indication of a rank of each transport format combination according to the associated channel quality requirement as required by claim 21.

Nevertheless, the Office Action cites column 19, lines 54-60 of Murata (reproduced below) for the disclosure of the elements of claim 21.

> Conversely, if the communication traffic is light and it is judged that the transmission power of each mobile station in the cell may be raised, the base station changes the value of P_{MAX} or Pg to a larger value (step 302) and reports this value to each of mobile stations by the notification information (step 303).

As is clear from the cited portion of Murata reproduced above, here Murata is discussing the base station changing a power value and reporting the adjusted power value to the mobile station. There is nothing in this section of Murata disclosing or suggesting a ranking of any sort or transport format combinations. As such, this section of Murata cannot disclose or suggest that the mobile station receives from the base station an indication of a rank of each transport format combination according to the associated channel quality requirement as required by claim 21.

Shiu likewise fails to disclose or suggest the elements of claim 21, and accordingly the combination of Murata and Shiu cannot render claim 21 obvious.

E. <u>The Combination of Murata and Shiu Does Not Render Claim 1 Obvious</u>

The combination of Murata and Shiu does not render claim 1 obvious because the combination does not disclose or suggest:

> b) calculating a channel quality requirement for the effective use of each transport format combination;
>
> c) indicating the transport format combinations and the channel quality requirements to the mobile station;
>
> • the indication of the existing quality of the channel of variable quality is communicated to the mobile station by inband signaling, whereby the indication of the existing quality of the channel of variable quality is included in every downlink radio

packet, in data locations normally assigned for carrying user information.

To reject element b) the Office Action cites figures 4, 10B and 12 and column 15, lines 3-16 of Murata. Although figures 4, 10B and 12 (reproduced below) illustrate various parameters associated with different transport format combinations, there is nothing in these figures indicating that there is a calculated channel quality requirement for each transport format combination.

FIG. 4

No TFCj	TrCH1 FORMAT (bits)	TrCH2 FORMAT (bits)	DATA LENGTH AFTER RATE MATCHING (bits)	TRANSPORT-SLOT FORMAT NO.
1	336bits×0	148×0	0	
2	336bits×0	148×1	600	2
3	336bits×1	148×0	600	2
4	336bits×1	148×1	1200	3
5	336bits×2	148×0	1200	3
6	336bits×2	148×1	1200	3
7	336bits×4	148×0	1200	3
8	336bits×4	148×1	2400	4
9	336bits×8	148×0	2400	4
10	336bits×8	148×1	4800	5
11	336bits×12	148×0	4800	5
12	336bits×12	148×1	4800	5
13	336bits×16	148×0	9600	6
14	336bits×16	148×1	9600	6
15	336bits×20	148×0	9600	6
16	336bits×20	148×1	9600	6
17	336bits×24	148×0	9600	6
18	336bits×24	148×1	9600	6

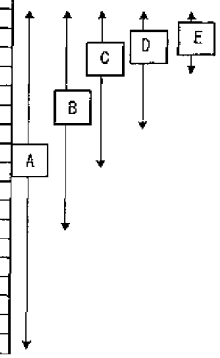


FIG. 12

No.	TrCH 1 FORMAT (bits)	TrCH 2 FORMAT (bits)	DATA LENGTH AFTER RATE MATCHING	TRANSPORT-SLOT FORMAT NO.	N(bits)	CLASSIFICATION BY SIMPLE CALCULATION
1	336bit×0	148×0	0	-	0	9
2	336bit×0	148×1	600	2	6926	6
3	336bit×1	148×0	600	2	24360	4
4	336bit×1	148×1	1200	3	30286	4
5	336bit×2	148×0	1200	3	48720	3
6	336bit×2	148×1	1200	3	54646	3
7	336bit×4	148×0	1200	3	97440	2
8	336bit×4	148×1	2400	4	103366	2
9	336bit×8	148×0	2400	4	194880	1
10	336bit×8	148×1	4800	5	200806	1
11	336bit×12	148×0	4800	5	292320	1
12	336bit×12	148×1	4800	5	298246	0
13	336bit×16	148×0	9600	6	389760	0
14	336bit×16	148×1	9600	6	395686	0
15	336bit×20	148×0	9600	6	487200	0
16	336bit×20	148×1	9600	6	493126	0
17	336bit×24	148×0	9600	6	584640	0
18	336bit×24	148×1	9600	6	590566	0

FIG. 10B

	MAXIMUM	MINIMUM
LARGEST CLASS 0	590560	590560/2=295280
NEXT LARGEST CLASS 1	295280	295280/2=147640
NEXT LARGEST CLASS 2	147640	147640/2=73820
NEXT LARGEST CLASS 3	73820	73820/2=36910
NEXT LARGEST CLASS 4	36910	36910/2=18455
NEXT LARGEST CLASS 5	18455	18455/2=9227.5
NEXT LARGEST CLASS 6	9227.5	0

Column 15, lines 3-16 of Murata describes figure 4 as a classification table in which Class A represents a class capable of transmitting the largest amount of user data and classes B-E being classes that are capable of transmitting lower amounts of user data. There is nothing in this or any other section of Murata

disclosing or suggesting that a channel quality requirement is calculated for each transport format combination as required by claim 1. Shiu fails to remedy this deficiency of Murata.

To reject element c) the Office Action cites column cites column 19, lines 34-43. As discussed above, this section of Murata discloses that the transmission of power values from the base station so that the mobile station can use the values to "to create TFC control data and performs the TFC selection based upon the transmission power".[23] Sending power values does not indicate to the mobile station "the transport format combinations and the channel quality requirements" as required by claim 1. At best, the power values indicate a channel quality requirement, but not transport format combinations. Shiu does not remedy this deficiency of Murata.

To reject the last element set forth above the Office Action relies upon a combination of Murata and Shiu. As discussed above with regard to claim 15, Murata and Shiu are both silent with respect to indicating channel quality by inband signaling in a user data portion of a radio packet. Accordingly, for similar reasons the combination of Murata and Shiu does not disclose or suggest the use of inband signaling by including an indication of existing quality in data locations normally assigned for carrying user information as required by claim 1.

Because the combination of Murata and Shiu does not disclose or suggest at least those elements of claim 1 set forth above, the combination cannot render claim 1 obvious.

[23] Column 19, lines 51-53.

F. The Combination of Murata and Shiu Does Not Render Claim 6 Obvious

Claim 6 depends from claim 1 and further requires that the indication of transport format combinations and channel quality requirements to the mobile station includes:

> (c1) ranking the transport format combinations according to the associated channel quality requirement; and
>
> (c2) indicating the rank of each transport format combination to the mobile station, along with the transport format combinations themselves, to the mobile station.

To reject element (c1) the Office Action cites figure 12 and column 21, line 65- column 22, line 8 of Murata as allegedly disclosing "simplified calculation of rank and it is an absolute value." First, element (c1) does not merely recite a ranking, but instead specifically requires ranking "according to the associated channel quality requirement." Second, the cited section of Murata discusses that the table of figure 12 is "for comparing and investigating classification finalized based on transport slot format upon performing the rate-matching calculation". There is nothing in Murata disclosing or suggesting that the table of figure 12 is ranked based upon associated channel quality requirement as required by Appellant's claim 6.

To reject element (c2) the Office Action cites column 19, lines 54-60 of Murata as disclosing "transmitting information to mobile station traffic information and classification." Traffic information and classification, however, does not disclose or suggest transmitting the transport format combinations themselves. Additionally, the cited section of Murata merely discloses the base station transmitting power values to the mobile station, and not traffic

information or classification information as asserted by the Office Action. Furthermore, the power values discussed in this section of Murata are not the transport format combinations themselves as required by element (c2).

Shiu fails to remedy the above-identified deficiencies of Murata, and accordingly the combination does not render claim 6 obvious.

VIII. CONCLUSION

As set forth above, the rejection of Appellant's claims are improper and should be withdrawn.

The Appeal Brief is being submitted with the required fee of $540.00. This amount is believed to be correct, however, the Commissioner is hereby authorized to charge any deficiency, or credit any overpayment, to Deposit Account No. 05-1323, Docket No. 103884.56565US.

Respectfully submitted,

November 23, 2009

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CLAIMS APPENDIX

1. In a mobile communications system comprising a network and at least one mobile station, a method for selecting a transport format combination TFC to be used for communication from the mobile station to the network, over a channel of variable quality, the method comprising the steps of:

a) defining a set of possible transport format combinations;

b) calculating a channel quality requirement for the effective use of each transport format combination;

c) indicating the transport format combinations and the channel quality requirements to the mobile station;

d) calculating an existing quality of the channel of variable quality; and

e) indicating the existing quality of the channel of variable quality to the mobile station; and, in the mobile station;

f) storing the transport format combinations and relative channel quality requirements;

g) receiving the indication of existing channel quality;

h) selecting one of the transport format combinations having a channel quality requirement no greater than the existing channel quality, and

i) informing the network of the selected transport combination,

characterized in that the indication of the existing quality of the channel of variable quality is communicated to the mobile station by

inband signaling, whereby the indication of the existing quality of the channel of variable quality is included in every downlink radio packet, in data locations normally assigned for carrying user information.

2. A method according to claim 1 wherein the step h of selecting one of the transport format combinations is performed with regard to the type of data to be transmitted by the mobile station.

3. A method according to claim 1, wherein the transport format combinations enable transmission of data blocks containing data from different Temporary Block Flows in each block.

4. A method according to claim 1, wherein calculation of the existing quality of the channel of variable quality is performed periodically during communication.

5. A method according to claim 1, wherein the relative channel quality is calculated as the minimum channel quality required such that data sent on the channel is received with an error ratio below a defined threshold.

6. A method according to claim 1, wherein the step c of indicating transport format combinations and channel quality requirements to the mobile station includes the steps of:

(c1) ranking the transport format combinations according to the associated channel quality requirement; and

(c2) indicating the rank of each transport format combination to the mobile station, along with the transport format combinations themselves, to the mobile station.

7. A method according to claim 6, wherein the step c2 of indicating the rank of each transport format combination comprises indicating the transport format combinations themselves in order of increasing, or decreasing, rank.

8. A method according to claim 6 wherein the step of indicating the existing quality of the channel of variable quality comprises indicating the rank of the transport format combination having the highest channel quality requirement, which could effectively be employed on the channel in its existing quality.

9. A method according to claim 8, wherein the rank is indicated as an absolute value.

10. A method according to claim 8 wherein the rank is indicated as a relative value, being an offset relative to a previous value of the rank.

11. (Cancelled)

12. A communications system comprising a network and a mobile station, respectively comprising means for carrying out the steps of, and arranged to perform, the method of claim 1.

13. (Canceled)

14. (Canceled)

15. A method for selecting a transport format combination (TFC) for use by a mobile station for transmissions over a channel of variable quality to a base station, the method comprising the steps of:

receiving, by the mobile station from the base station, a set of transport format combinations and a calculated channel quality requirement for each transport format combination of the set;

receiving, by the mobile station from the base station, an indication of existing channel quality of the channel of variable quality, wherein the indication is received by inband signaling in a user data portion of a radio packet;

selecting, by the mobile station, one of the transport format combinations having a channel quality requirement no greater than the existing channel quality; and

informing, by the mobile station, the base station of the selected transport combination.

16. The method of claim 15, wherein the indication of existing channel quality is included in the packet following the coded transport format combination identifier (TFCI).

17. The method of claim 15, wherein the indication of existing channel quality of the channel of variable quality is received by the mobile station in every data packet.

18. The method of claim 15, wherein the selection of one of the transport format combinations is performed with regard to the type of data to be transmitted by the mobile station.

19. The method of claim 15, wherein the transport format combinations allow transmission of data blocks containing data from different Temporary Block Flows in each block.

20. The method of claim 15, wherein the relative channel quality is calculated as the minimum channel quality required such that data sent on the channel is received with an error ratio below a defined threshold.

21. The method according to claim 15, wherein the mobile station receives from the base station an indication of a rank of each transport format combination according to the associated channel quality requirement.

EVIDENCE APPENDIX

None.

RELATED PROCEEDINGS APPENDIX

None.